

REMARKS/ARGUMENTS

Applicant submits the following additional remarks in addition to those submitted with the Amendment dated September 15, 2004. The remarks contained in that Amendment are incorporated herein by reference. They will not be repeated herein, except as necessary to make clear these additional remarks.

These remarks primarily concern the Ho reference (U.S. Patent 6,212,358). Ho is directed to a "Learning System and Method Based on Review" which uses the concept of learnt and un-learnt "line-items." "Line-items" as used in this reference are not the same as the "questions" which are the subject of various claims of the present application. A "question" in the present application is a single equation, such as "2X3=??" or "5X?=10". In contrast, a "line-item" in the Ho reference is defined as follows:

"Each line-item typically covers one well-defined area in the subject." (col. 3, ll. 23-24)

Ho provides the following examples of "line-items" at col. 3, ll. 30-58:

"Integers

(Line-items under the minor-topic of integers)

Addition & Subtraction (Difficulty level 1)

Multiplication (Difficulty level 2)

Division (Difficulty level 2)

Prime Numbers (Difficulty level 3)

Factorization (Difficulty level 3)

Common Divisor (Difficulty level 4)

“Fractions

(Line-items under the minor-topic of fractions)

Addition & Subtraction (+/-) with Common Denominator (Difficulty level 3)

+/- with Integers (Difficulty level 4)

+/- without Common Denominator (Difficulty level 5)

Multiplication and Divisions (*,/) with Integers (Difficulty level 5)

*,/ with fraction (Difficulty level 6)

Compound Fractions (Difficulty level 6)

Fraction Reduction (Difficulty level 7)

Ratios and Proportions (Difficulty level 7)” (Emphasis added)

Note that any of the Ho line-items would include a large number of the “questions” that are the subject of the present claims.

The following passage from Ho further highlights the distinction: “In the present invention, one does not have to totally understand every aspect of a line-item before he is considered to have learnt that line-item.” Col. 4, ll. 29-31. That is, Ho recognizes that the line-item will be considered “learnt” even though many of the individual questions making up that line item are still answered incorrectly by the student.

That this is the proper meaning of “line-item” in Ho is reinforced by the Abstract which states that the system “generates detailed learning materials for the un-learnt line-item.” (See also col. 2, ll. 11-13). A “line-item” in Ho cannot be the same as a “question” in the present application, since generating detailed learning materials for a “question” makes no sense. The “question” is either presented to the student or it is not.

For all these reasons, Ho is directed to a very different system from that claimed in the present application. (See also the Amendment filed September 15, 2004 for a discussion of other differences.)

Application of Ho to the present claims:

Claim 8 is directed to an electronic learning aid that includes “a missed-questions memory for storing a predetermined plurality of questions that, **during any of a plurality of sets of questions, were answered incorrectly or were not answered within a per-question time limit.**” As discussed above, Ho does not concern itself with whether any individual question is answered correctly or not. Rather Ho is concerned with whether “line-items” such as “division” or “prime numbers” are “learnt” or “un-learnt”. There is, therefore, no teaching in Ho that any record is kept of the particular questions that were answered incorrectly during the last test session. Given the fact that Ho specifically teaches that “one does not have to totally understand every aspect of a line-item before he is considered to have learnt that line-item”, it appears that Ho in fact teaches away from the present invention which requires keeping track of missed questions. Claim 8 is directed to a very different apparatus than that disclosed by Ho.

Claim 8, in addition, requires that this information be stored in a missed-questions memory for “a plurality of sets of questions”, not just the last set. The art is completely silent concerning this feature. This feature allows the user to focus solely on previously missed problems (which missed problems are collected from a plurality of sets). The review process with the claimed invention, as a result, is not diluted and prolonged with problems the user has not missed.

Claim 8 is allowable for all these reasons, in addition to the ones discussed in the previous amendment.

Claim 16 is directed to an electronic learning aid that has a "question engine" and a "question-probability selector." As explained above, Ho never assigns probabilities to individual questions. Many individual questions in Ho can be answered incorrectly and the "line-item" can still be considered "learnt" by the Ho system. Ho is simply not concerned with how often a particular question is presented to the student. Accordingly, since Ho teaches that the probability of individual questions being presented is irrelevant, Ho certainly lacks any suggestion of allowing a "user to select one of a plurality of **question-probability settings**", as required by claim 16.

The invention of claim 16 allows both the selection of different groups of equations for presentation to the student, and the assignment of multiple-non-zero probabilities of presentation with each of those groups. Specifically, claim 16 provides for a question-probability selector that allows the user to select one of a plurality of question-probability settings. These are the difficulty levels described in the specification. Claim 16 further provides that for a question-probability (difficulty level) setting, each question has "a predetermined probability of being the next question communicated". That predetermined probability can be "equal to or greater than zero percent", which means that for a selected difficulty level certain equations can be omitted completely (they have a predetermined probability of zero percent). Claim 16 goes on to specify that for equations which are presented at a selected difficulty level (those questions with "a predetermined probability greater than zero percent") the probability of one question can differ from the probability of presentation of another question. In addition, claim 16

provides that for the same question, but a different difficulty level, the probability of presentation can differ.

Claim 16 is, therefore, directed to a unique system in which the same question can be involved in different groups of questions to be presented (based upon the selected difficulty level), and that the probability of presentation for that question can differ. For example, the question $2 \times 3 = ?$ could have a probability of presentation of 7.92% at a low level of difficulty, but a probability of presentation of 0.41% at a high level of difficulty.

Ho lacks any teaching of setting probabilities for individual questions. As a result, Ho is totally silent on changing those presentation probabilities for individual questions so as to change the "mix" of questions presented at each difficulty level.

Claim 16 is allowable for all these reasons, in addition to the reasons set forth in the Amendment filed September 15, 2004.

Non-Ho Supplemental Remarks:

With respect to claims 22 and 23, in the previous Amendment several examples were given to illustrate the difference between Papadopoulos in view of Yamauchi et al. and those claims.

The distinction between the present claims and the references is that the references increase the time to answer in response to the complexity of the question, while the presently claimed invention increases the time to answer based upon the number of characters required for the correct answer. For example, 1×10 and 12×6 differ greatly in complexity (and hence would be assigned different times to answer by Yamauchi) but are not assigned different times to answer by the present invention. Both

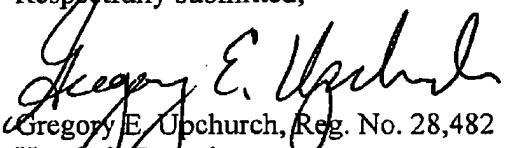
equations require a two-digit response, and are as a result assigned the higher time to respond by the apparatus of the present invention. Similarly, 10 X 10 and 12 X 9 differ in complexity (and as a result would be assigned different times to answer by Yamauchi) but are assigned the same "longer per question limit" by the apparatus of claim 23 because they require "entry of at least three alphanumeric characters." The present invention is directed not to the difficulty of mentally arriving at the answer, but rather on the time needed to manually enter the answer with the number keys. Claims 22 and 23 are allowable over the art for all these reasons.

In view of the above, all the rejections and objections are overcome and the case is in condition for allowance.

Applicants respectfully request that a Notice of Allowance of claims 1-16 and 18-26 (all the claims pending in this case) be issued.

The Office is hereby authorized to charge deposit account #08-3460 for any additional fees required.

Respectfully submitted,


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